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Executives' Pay and Accounting Income: The
Effect of LIFO-Switching and Firm Ownership

A. Rashad Abdel-khalik

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Accounting Income and Executives' Pay:
The Effect of LIFO-Switching and Firm Ownership

Abstract:

Empirical research on agency theory postulated that managers' choice of accounting methods is, to some extent, motivated by the impact of the chosen methods on their bonuses. In particular, it has been argued that income increasing policies will be selected by executives whose bonuses are determined as a function of accounting income.

The accounting change to LIFO was chosen for this study because of its unique attributes: it increases the economic income by reducing the actual payments of taxes, but it decreases accounting profits as reported to stockholders. If the latter were to be used in the determination of executives' compensation, the incentive to save taxes by changing to LIFO would be reduced.

The empirical results in this paper are based on analysis of the changes in the structural relationships between income and executives' compensation for a sample of 176 firms. One-half of the sample consists of firms that switched to LIFO. The analysis covered a period of four years: two before the change, the year of the change, and one year after the change. The evidence presented does not support the 'bonus hypothesis' in that executives bonuses were not adversely affected by the change. Two possible explanations were mentioned: the first is concerned with re-contracting the bonus arrangements such that it would be based on pre-change accounting method (FIFO), or to increase the percentage of income that is being granted as a bonus. The second is that the switch to LIFO was made by companies whose executives have reached the maximum contractual limits for income-based bonuses.

EXECUTIVES' PAY AND ACCOUNTING INCOME:
THE EFFECT OF LIFO-SWITCHING AND FIRM OWNERSHIP

Much of the research on the change in the accounting method of inventory valuation has focused on the consequences of the LIFO choice. Little has been done concerning managers' motivation for electing to change the inventory valuation to LIFO. This paper examines the effects of the switch to LIFO on executives' pay--which is sometimes called "the bonus-hypothesis." Briefly stated, the "bonus-hypothesis" states that managers select income increasing accounting methods whenever they expect their income-based bonus to increase as a result of having made that choice. This is part of an effort to understand the motivation of executives in retaining the FIFO method of inventory valuation when it is clear that the switch to LIFO will increase the net cash inflow to their firms.¹

The results of this study suggest that the change to LIFO has no significant negative effect on executives' pay whether pay is defined as (a) salary plus performance based bonus in cash and unrestricted stock, (b) salary, plus bonus, fringe benefits and contingent performance compensation. Hence, the bonus-hypothesis has not been supported for this sample of 1974 switch to LIFO. Two explanations for this finding are proposed here: either the switch firms adapt their bonus arrangements or, as some managers have indicated to this author, they continue to use the FIFO-based income in determining the annual bonus. Both explanations are consistent with the notion of adaptability and immaterial recontracting cost. However, it should be clear that these results do not necessarily refute the bonus hypothesis because of

possible self-selection bias: firms switching to LIFO are those whose bonus system is adaptable. It remains to study the motivation for retaining FIFO before generalizing the results reported here.

1. THE LIFO DECISION

The accounting change to LIFO is unique. Being voluntary, it can be adopted completely at the discretion of management. Furthermore, it is accepted by the IRS for tax reporting provided that it is also concurrently adopted for external purposes. Consequently, the LIFO change generates conflicting signals: it decreases the reported accounting income, while it increases the firms net operating cash inflows as a result of an equal reduction in the actual tax burden. Such a conflicting signal is typically provided by a stable or a growth firm that has a positive marginal tax rate which decides to switch to LIFO during a period of rising prices. Under those conditions, the switch to LIFO increases the present value of the firm (Sunder, 1976).

Why then do many firms facing those conditions delay making the switch? The IRS records indicate that "only 2.5 percent of all wholesalers and 1.5 percent of all retailers use the LIFO Method." (Daily Tax Report, October 5, 1983). In addition, an analysis of the tax liability of the samples used in this study (sampling is explained later) indicate the marginal tax rates for 90 percent of the sample of firms that retained FIFO (88 firms) were positive over a ten year period just as were the marginal tax rates for the switch firms (also 88 firms).² Thus, the "tax hypothesis" advanced by others (see for example, Morse and Richardson, 1982) does not apply at least for these

two samples. Other studies also indicate the same phenomenon. For example, Biddle and Martin (1983) proved analytically that the present value of after-tax inventory profits under LIFO is greater than under average cost or FIFO cost flow assumptions if the unit cost of purchase is monotonically nondecreasing. In particular, except for an industry such as electronics where prices have been falling recently, many managers could have increased the present values of their firms by switching to LIFO instead of retaining FIFO. Two possible explanations for retaining FIFO are considered: they relate to managers' view of the effects on shareholders wealth or on their own income. Each is discussed briefly below.

(1) Security Price Effects: Fear of negative effects on security prices due to reporting a lower accounting income is one possible explanation for delaying the change. Such a possibility has not been documented, however. The cross sectional empirical evidence on the securities market reaction to the LIFO switch is, on average, mixed. On the one hand, a positive association between the switch to LIFO and security prices has been reported by Sunder (1973, 1975) and Biddle and Lindahl (1982). By contrast, Brown (1980) reported no significant association, Ricks (1982) found a negative market reaction to the switch, and Abdel-khalik and McKeown (1978) found the market reaction to be conditional on, and consistent with, the direction of the deviation of actual earnings from analysts' earnings forecasts that prevailed prior to the announcements of the switch to LIFO.

Although differences in research design might provide a partial explanation for the different results reported in those studies, the

evidence is more in the direction of finding no adverse reaction (on average) of the market to the switch to LIFO. The missing factor, however, is managers' own beliefs about market consequences. Although the empirical evidence is in favor of a semi-strong form of market efficiency, managers' actions will depend on whether or not they believe in it. Executives' understanding of this issue is unclear and the evidence about it is limited (Mayer-Sommer, 1979).

(2) Effects on Executives' Pay: The second possible explanation relates to managers' own annual income. Kaplan, for instance, asserts that executives retain FIFO for the fear of what negative effects the switch to LIFO might have on their own annual pay. He writes:

Executives can take many actions that increase reported income--and hence increase their (own) income from incentive compensation plans--but decrease the firm's value from the owner's point of view. How else can we explain the persistence of so many United States corporations in remaining on FIFO for inventory valuation rather than switching to LIFO (Kaplan, 1982, p. 570)?

This hypothesis has not been tested and is the subject of this study. Prior evidence concerning the association between executives' compensation and the choice of the inventory method of valuation has been mixed (e.g., Hagerman and Zmijewski, 1978; and Zmijewski and Hagerman, 1981). Moreover, evidence related to the discretionary choice of accounting methods (see also, Holthausen, 1981) provides no support for the view that managers adopt income increasing policies because of the compensation effect. However, the results reported by these studies suffer from research design shortcomings which tended to reduce the explanatory power of relevant variables. One particular problem arises from the use of a dummy variable (1-0 classification) to

denote the existence or the absence of an accounting-based profit bonus plan. Such a dichotomous measure provides very limited information and fails to discriminate between quantitatively different bonus plans. The 1-0 classification, for example, is impervious to a renegotiation of the level or the base of the profit bonus that might result in completely different incentive schemes since all will be assigned a value of "1". Furthermore, the one period model implicit in the agency literature does not permit an analysis of the adaptability of the agent's compensation contract to changes in the environment that would motivate changing accounting methods. Thus, it does not allow for the possibility that managers' renegotiate the particular components of their compensation plans. Adaptability of the system makes it irrational for a corporate compensation committee to penalize top executives by reducing their bonus as a result of their making a relatively costless decision to increase the net cash flow to the firm. It is also irrational for the compensation committee of FIFO firms to reward the failure to switch to LIFO. The setting in this case is different, however, because FIFO is the "status quo" whereas managers proposing the switch to LIFO would have to justify departure from status quo. Unless the compensation committee requires a target return given certain accounting methods, there is no a priori reason for it to examine the reasonableness of methods used, or to provide departure from such methods. The absence of empirical evidence in support of the "bonus-hypothesis" motivated the completion of the present study.

2. THE FIRM'S OWNERSHIP

Prior to the emergence of agency theory, Monson and Downs (1965) advanced what they called the "theory of large managerial firms." Essentially, they argued that decisions made by large corporations with diffuse ownership may not obey the neoclassical economic theory of the firm and thus might pursue policies that are not necessarily compatible with the long term value maximization objective. The "theory of large managerial firms" stipulates that, when control is in the hands of professional managers, not owners, executives will consider their own self interest and will make different choices. For example, Williamson (1964) argued and Smith (1976) tested the hypothesis that those managers "will respond to changing environmental conditions in such a way as to attenuate intertemporal variations in performance in comparison to a profit-[value] maximizing management" (Williamson, 1964, p. 299).

Several accounting studies have postulated that pursuing different objectives by the executives of owner-controlled and manager-controlled firms is reflected in the accounting choices they make. The studies by Smith (1976), Tranter (1978), and Dhaliwal et al. (1981) were concerned with the choice of depreciation policies, accounting policies that lead to the smoothing of income and the effects of accounting for research and development for the two types of firms. None, however, has been conducted on the switch to LIFO and the association with owner-controlled or manager-controlled type of firm ownership. This discretionary accounting change is more interesting to study because the switch to LIFO, given the proper conditions, increases the value of the firm. In particular, the effect of executives' action on their

wealth might be manifested in different ways: higher value of stock holdings for executives with large ownership of shares and higher bonus for executives who are hired "agents." Thus, it is expected that the former group switches to LIFO when the conditions are favorable (positive marginal tax rates, increasing prices and stable or growing business). By contrast, for the executives of the latter group (manager-controlled firms), the increase in their wealth from the change in the value of the firm is a relatively smaller proportion of their total income by comparison to that of the executives in the owner-controlled firms. Consequently, different behavioral assumptions are formulated for the executives' actions of the two types of companies. Since the changes in the values of the insiders' holdings are not included in this study as part of their annual pay, the classification of firms into owner-controlled and manager-controlled is used as a surrogate measure. It is recognized, however, that this measure is a simplification and does not capture all the information contained in value changes of insiders' holding of shares and the results should be interpreted with this limitation in mind.

Similar to the criterion used in previous studies (Dyckman et al, 1981; Dhaliwal et al, 1982, and Tranter, 1976), a firm is classified as owner-controlled if "one party owned 10 percent or more of the voting stock and exercised active control;" otherwise it is classified as manager-control (Dhaliwal et al., 1982, p. 48). The 10 percent insiders' ownership was adopted in this study in classifying the firms in the sample by type of control.

3. HYPOTHESES

3.a Hypotheses related to the structure prior to making the accounting change. The above discussion leads to formulating three null and three alternative hypotheses. The first pair is concerned with the structure of incentives prior to the switch to LIFO. If the bonus-hypothesis is valid, the smaller the elasticity of executives' pay to income, the smaller the expected penalty arising from the change to LIFO. This hypothesis can be tested by examining the incentive structure before the change for those firms that subsequently switched to LIFO and those that retained FIFO. These hypotheses are:

H_{10} : Prior to changing to LIFO, the structural relationship between income and executives' pay was not different between the firms that subsequently changed to LIFO and others.

H_{1a} : Prior to making the change, the structural relationships between accounting income and executives' pay suggests a higher bonus component for executives of the firms that retained FIFO than for those that subsequently changed to LIFO.

3.b Hypotheses related to the structure after the accounting change. Regardless of whether or not the incentive structure was different between the change and the no change firms, the change to LIFO may have no adverse effects on the executives' bonus if one of two situations takes place: (1) if executives' bonus is based on the FIFO-income even after the change to LIFO; or (2) if the bonus arrangement is altered to take into account the lower income base such that

the dollar amount of the bonus is not affected by the change. Although anecdotal evidence obtained by talking with several executives lends support to the former situation (basing the bonus on FIFO-measured income), either situation renders a situation of adaptation that might explain some of the negative findings reported in the literature (e.g., Hagerman and Zmijewski, 1978).

Since no information can be gathered directly on either situation (basing the bonus on FIFO income or increasing the percentage of bonus to offset the effect of the change), the following hypotheses do not distinguish between them as sources of adaptation:

H_{2o}: The change to LIFO was not accompanied by a reduction in executives' pay relative to those retaining FIFO.

H_{2a}: The bonus component of the executives' pay was relatively reduced for the switch firms as compared to others in the year of the change.

3.c Hypotheses related to the effect of firm-ownership. As stated earlier, manager-controlled firms have the characteristic of absentee-ownership which renders them closer to "agency" as defined in the literature. On the other hand, owner-controlled firms are farther away from "agency" since they are basically controlled by the "principal." While wealth maximization for the principal is consistent-with maximizing the present value of the firm, wealth maximization for the agents (executives in manager-controlled firms) are derived from their work compensation. Hence, the latter type is expected to take actions that are consistent with the bonus-hypothesis: Thus, the type of firm ownership is expected to have implications for making the accounting

change for which the following hypotheses are designed to test. It should be noted that the alternative hypothesis is testing the bonus hypothesis in a setting that differentiates between the two cases: executives with large ownership of shares (owner-controlled) and those with minor ownership of shares (manager-controlled).

H₃₀: The effect of accounting change on executives' pay was not different for manager-controlled and owner-controlled firms.

H_{3a}: The accounting change to LIFO reduced executives' pay for manager-controlled firms as compared to the owner-controlled firms.

4. METHOD AND RESEARCH DESIGN

4.a Basic Design: The models used in this paper are in some respects adaptations of the model advanced by Boyes and Schlagenhauf (1979). They suggested that the log-transformation provided as good an estimation as the Box-Cox transformation they used. This paper is a log-linear regression models. It consists of two continuous and two indicator variables. The basic model takes the form:

$$\begin{aligned} \text{Ln}P_i &= a_0 + a_1 \text{LnINC}_i + a_2 \text{OM}_i + a_3 \text{EC}_i \\ &+ a_4 \text{OM}_i^* \text{LnINC}_i + a_5 \text{EC}_i^* \text{LnINC}_i \\ &+ a_6 \text{OM}_i^* \text{EC}_i^* \text{LnINC}_i + e_i \end{aligned} \tag{M1}$$

Where:

P_i = the annual pay of CEO for company i

(Pay included salary, bonus, in cash and unrestricted stock);

INC_i = net income for company;

OM_i = a dummy variable (intercept-shift) denoted

0 = owner-controlled company,

1 = manager-controlled company,

EC_i = a dummy variable (intercept-shift) denoted

0 = for the switch firm

1 = for the FIFO firm

a_0 = intercept term

a_1, a_2, a_3 = coefficients for the above variables

a_4, a_5, a_6 = coefficients for interaction terms (slope-shift)

e_i = error term

Ln = natural log.

The only constraint that this function may not violate is that the coefficient of income, a_1 , must be non-negative and less than one. This is necessary since it reflects the elasticity of executives' pay to income. Such a constraint will be met if the function has construct validity; that is, no need to impose bounds on a_1 before estimation.

The basic design as indicated by equation (M1) requires that the sample consist of firms that switched to LIFO and others which, during a corresponding time period, retained FIFO. Sampling is discussed below (item 5.e).

4.b The Dependent Variable: Prior research (e.g., Watts and Zimmerman, 1978; Hagerman and Zmijewski, 1979; Bowen et. al., 1981) used a dichotomous (one-zero) dummy (independent) variable to designate the existence or absence of a bonus plan. Such a classification does not

capture the wide range and variability of the bonus component of executives' annual compensation, which takes on several variations. Several of those features were reported by the Conference Board (1980, p. 12). In particular, (a) about 90 percent of the companies surveyed in 1979 had annual performance bonus plans; (b) the 1979 bonus award constituted 100 percent of the salary (equal amount to the salary) of the chief executive officers in 13 percent of the surveyed companies; and (c) the percentages of bonus payment to the salary for the middle ranges of pay (second and third quartiles) of surveyed companies were 39 to 77 percent for chief executive officers, 36 to 71 percent for the second highest paid officer, and 34 to 67 percent for the third highest paid officer. This information elevates the importance of two issues: (1) the use of a dummy variable does not capture the information included in the variability of executives' pay, and (2) the CEO's bonus structure is a reasonable surrogate for the bonus structure of the three top executive officers within a given firm.

The present paper used the dollar amounts of annual pay (salary and performance based bonus both in cash and in unrestricted stock)³ of chief executive officers (CEO) as the dependent variable. The annual dollar amounts paid to CEOs are filed annually in the proxy statements with the SEC. A compilation of that information as filed is published by Forbes, but only for the top paid CEOs (the number varied around six-hundred from one year to another). This is the same source used by Boyes and Schlagenhauf (1979), Ciscel and Carroll (1980) and Hirschey and Pappas (1981) in their studies concerning executive pay and the managerial theory of the firm.

4.c Independent Variables: Accounting income numbers were obtained from Compustat as reported for all companies in the sample. In addition, the effect of the change to LIFO on income (net of tax) was collected from company reports, Wall Street Journal and other financial records. These effects were then used to adjust the reported LIFO-income in the year of the change to obtain the income numbers that could have been reported under FIFO. Regression equation (M1) was estimated for both measures of income (reported and as if,) in the year of the change.

The OM variable is a dummy variable indicating whether the company is owner-controlled or manager-controlled. As explained earlier, a 10 percent ownership of voting stock by insiders was used as the cut-off between the owner-controlled and the manager-controlled company. The percentage of insiders ownership was obtained from the companies filings with the SEC as summarized by the Value Line Investment Survey.

The third variable, EC, refers to the incident of the switch to LIFO. E stands for the (experimental) switch firms, while C stands for the (control) companies that retained FIFO during the investigation period.

4.d Investigation Period: The analysis is carried out for a period of four years--two years before the change, the year of the change to LIFO, and the year subsequent to the change. As in Ciscel and Carroll (1980), Lewellen and Huntsman (1970), and Boyes and Schlagenhauf (1979), a regression equation was estimated for each year separately.

4.e The Sample: The sample consisted of 176 firms, 88 of which switched to LIFO and 88 retained FIFO during the same four calendar years constituting the investigation period. The switch (experimental) firms were selected first (after excluding banks, insurance, and utilities) from the list reported by Forbes in 1974, the year in which most of the change took place. Several data requirements were imposed on the selection process that resulted in the 88 switch firms. The data requirements consisted of the following: (1) The company must be currently listed (in 1981) on Compustat in order to obtain sales and assets data. (2) Financial institutions and utilities are excluded. (3) Executives' pay data would be available for the company for three of the four-years investigation period. They represented 51 industries (using the three digits of the standard CUSIP industrial classification).

The other 88 (FIFO) firms were also selected from the Forbes list. In addition to satisfying the three data requirements listed above, it was also required that no change of inventory method valuation was made by those companies during the investigation period. Since the investigation period was essentially determined by the change year for the experimental sample, another requirement was imposed on the FIFO sample: it must represent the same composition of fiscal years as the experimental sample. Once the selection was made, the two samples were combined for each year separately. The FIFO sample was comprised of companies in 57 industries (also using the three digit-classification).

Given that the selection process centered around the calendar year of the change, some variation in sample size existed from one year to

the other due to missing data. That is, some firms did not make the list of the Forbes list of CEOs in some years. The smallest sample size, however, consisted of 132 companies for the fiscal period of two years before the change. For the remaining periods, the sample size was not smaller than 149. A company was excluded from estimation in the year in which it had missing data.

5. ESTIMATION AND RESULTS

5.a Model Estimation. Model (M1) was estimated for each year separately with two separate regressions estimated for the year of the change: one for income as reported (LIFO), and the other using the pro forma, as if (FIFO) income. The results of estimating model (M1) are reported in Table 1. As shown, heteroscedasticity in the residuals was observed in all regressions, except for the year before the change (year -1). Notwithstanding this estimation bias, the functions behaved as expected: The coefficients of income were consistently significant (at $p < 0.01$), positive, and less than one; the functions were statistically significant ($p < 0.01$); and the levels of adjusted R^2 were reasonable for cross sectional analysis. Nevertheless, the bias introduced by heteroscedasticity makes it difficult to evaluate the significance and the meaning of those coefficients.⁴

Insert Table 1 here

5.a.1 Correcting for Heteroscedasticity Assuming that Model (M1) is the True Model. The test for heteroscedasticity used here is the Glejser test (Johnston, p. 220) in which the absolute value of the residuals are regressed on some form of the independent variable,

Table 1

Regression Results of Executives Pay as a Function of Income, Firm Ownership and The Accounting Change

Year with Respect to change	Stat.	Intercept a_0	Coefficients						Summary Statistics			Heteroscedasticity?
			a_1 (t)	a_2 (t)	a_3 (t)	a_4 (t)	a_5 (t)	a_6 (t)	Adjusted R^2	F (n;dn)		
Two years before the change: (Year -2)		3.32 (7.4)*	0.184 (4.36)*	0.27 (0.43)	-0.68 (-1.05)	-0.017 (0.059)	0.056 (0.9)	0.019 (1.6)	0.35	12.8* (6;125)	Yes ($p < 0.01$)	
One year before the change: (Year -1)		2.72 (4.7)*	0.245 (4.6)*	-0.09 (-0.15)	-0.33 (-0.5)	0.011 (0.058)	0.025 (0.42)	0.018 (1.85)**	0.42	19.0* (6;145)	No	
The year of the change: (Year 0, as reported on LIFO)		2.9 (4.5)*	0.24 (4.14)*	0.98 (1.64)**	0.91 (1.5)	-0.088 (-1.63)**	-0.10 (-1.85)**	0.034 (2.85)*	0.25	9.0* (6;142)	Yes ($p < 0.13$)	
The year after the change: (Year +1)		3.42 (7.3)*	0.202 (4.7)*	0.68 (1.21)	0.92 (1.7)**	-0.065 (-1.27)	-0.105 (-2.1)*	0.033 (3.15)*	0.24	8.97* (6;143)	Yes ($p < 0.12$)	
The year of the change as if (FIFO) Income		2.89 (4.48)*	0.239 (4.11)*	0.98 (1.64)**	0.91 (1.46)	-0.087 (-1.63)**	-0.10 (-1.74)**	0.033 (2.72)*	0.24	8.9* (6;142)	Yes ($p < 0.08$)	

Notes: (1) * Indicates statistical significance at below 0.01.

(2) ** Indicates statistical significance at below the 0.05 level (one-tailed test).

(3) The model estimated is the following model using OLS:

$$\ln P_i = a_0 + a_1 \ln \text{INC}_i + a_2 \text{OM}_i + a_3 \text{EC}_i + a_4 \text{OM}_i * \ln \text{INC}_i + a_5 \text{EC}_i * \ln \text{INC}_i + a_6 \text{EC}_i * \text{OM}_i * \ln \text{INC}_i + e_i$$

(Terms are defined in text)

LnINC. Having obtained significant coefficients indicates that the variance of the error terms was proportional to the independent variable, LnINC.

In this situation, a weighted least squares is recommended. Deflating all the variables in (M1) by the LnINC (that is, the weight of the regression is $[1/\text{LnINC}]$) and applying OLS is equivalent to using a weighted least squares (see, Commons, 1976, pp. 459-462; Neter and Wasserman, 1974, pp. 131-136). Thus, the weighted least squares version of (M1) is as follows:⁵

$$\begin{aligned}
 LP_i(1/\text{LnINC}_i) &= b_0(1/\text{LnINC}_i) + b_1 + b_2(1/\text{LnINC}_i)OM_i \\
 &+ b_3(1/\text{LnINC}_i)EC_i + b_4 OM_i + b_5 EC_i \\
 &+ b_6 OM_i * EC_i + e_i(1/\text{LnINC}_i) \quad (M1w)
 \end{aligned}$$

Where all terms are as defined in M1. The estimated coefficients in this function correspond to those of the original form (M1), but (M1w) has the additional econometric nicety of reducing the problem of heteroscedasticity where such a problem existed. That is, the coefficients b_2 and b_3 are intercept-shift since $b_0 = a_0$, $b_2 = a_2$, and $b_3 = a_3$; while the coefficients b_4 , b_5 , and b_6 are slope-shift since $b_1 = a_1$, $b_4 = a_4$, $b_5 = a_5$, and $b_6 = a_6$.

Since the estimate of the regression of year -1 was not heteroscedastic in the initial estimation (as shown in Table 1), there was no need to use weighted least squares for that year's data. However, such an application should provide a check on the quality of the estimated

function reported in Table 1 for year -1. Accordingly, five regressions were estimated for (Mlw) as was the case with (M1).

The results of estimating (Mlw) are presented in Table 2. As shown, adjusted R^2 were significantly higher as compared to the estimates provided in Table 1 for the years in which corrections for heteroscedasticity were required. Adjusted R^2 was 0.66 as compared with 0.33 for year -2, 0.81 as compared with 0.25 for year 0 (as reported and as if), and 0.82 as compared with 0.24 for year +1. As expected, however, weighted least squares did not perform as well as OLS for year -1, the year for which OLS provided best linear unbiased estimator (BLUE) and for which data transformation was not required.

Insert Table 2 here

Given these results, the BLUE estimates of the functions are reported in Table 2 for years -2, 0, and +1; and are reported in Table 1 for year -1.

5.a.2 Correcting for Heteroscedasticity Assuming that Model (M1) is Misspecified. The above analysis assumed that executives' pay is a function of income, but the economics literature on managerial pay examined whether executives are actually paid to maximize profits (the neoclassical theory), or to maximize sales subject to a constraint for the rate of return (Baumol's hypothesis). The results of extensive testing of both hypotheses led to mixed results. Even in the case of Ciscel and Carroll (1980), who initially attempted to resolve the problem, implied that the source of increasing profits can't be distinguished as to whether it is through sales growth or cost control"

Regression Results of Executives Pay as a
Function of Income, Firm Ownership and
The Accounting Change
(Using weighted Least Squares)

Year with respect to change	Intercept a_0 (t)	Coefficients					Summary Statistics		
		a_1 (t)	a_2 (t)	a_3 (t)	a_4 (t)	a_5 (t)	a_6 (t)	Adjusted R^2	F (n; dn)
Year -2 (Two years before the change)	3.87 (12.6)*	0.13 (4.3)*	-0.028 (-0.04)	-0.5 (-0.86)	0.011 (0.19)	0.037 0.61	0.025 (2.03)*	0.66	43.1 (6;125)
Year -1 (One year before the change)	2.37 (3.98)*	0.278 (4.99)*	0.12 (0.18)	-0.06 (-0.1)	-0.01 (-0.17)	-0.0002 (-0.0004)	0.022 (2.09)*	0.30	12.0 (6;145)
Year 0 (The year of the change using reported income)	3.12 (5.1)*	0.222 (3.95)*	0.30 (0.64)	1.34 (2.3)*	-0.029 (-0.6)	-0.15 (-2.77)*	0.036 (3.05)*	0.81	103.2 (6;142)
Year +1 (after the change)	3.97 (10.5)*	0.15 (4.26)*	0.40 (0.7)	0.87 (1.6)	-0.04 (-0.79)	-0.11 (-2.01)*	0.034 (3.14)*	0.82	118.4 (6;143)
Year 0 (The year of the change using as if (FIFO) income)	3.08 (4.85)*	0.222 (3.86)*	0.31 (0.66)	1.38 (2.2)*	-0.03 (-0.7)	-0.15 (-2.58)*	0.037 (3.01)*	0.81	102.6 (6;142)

Notes: (1) * denotes statistical significance at a level below 0.01.

(2) The model used here is of the form:

$$(\ln P_i / \ln INC_i) = a_0 (1 / \ln INC_i) + b_1 + b_2 OM_i (1 / \ln INC_i) + b_3 EC_i (1 / \ln INC_i) + b_4 OM_i + b_5 EC_i + b_6 OM_i * EC_i + u_i \quad (\text{Model M1w})$$

where $b_i = a_i$ in Model M1.

(1980, p. 13). Almost all of the studies on the subject found both sales and profits to be empirically significantly associated with executives' pay (e.g., Lewellen and Huntsman, 1970; Boyes and Schlagenhauf, 1979; and others cited in those articles). Although the validity of those results would depend on the extent to which the authors had successfully dealt with the multicollinearity between sales and income, they question the validity of the model used here. In particular, if the results of the studies on managerial pay provide a correct specification of the pay structure, then our model (M1) would be misspecified for having omitted a relevant variable, sales.

In order to correct for this misspecification, model (M1) was augmented. Due to the multicollinearity between sales and income (and their functional dependence), other studies orthogonalized those two variables by regressing income on sales and using both sales and the residual of income in the regression that evaluates executives' pay. This approach was used here before abandoning it because, in some years, the coefficient of the residual of income was insignificant. Since the objective of this paper is to evaluate the effects of accounting change that affects income on executives' bonus, orthogonalization of income and sales was done differently.⁶ Sales were regressed on income and the residuals, RS, were used to represent sales. This approach permitted a full representation of income as an independent variable. Accordingly, model (M1) was augmented by including the RS variable, which has the coefficient a_7 . This is then considered model (M2).

The regression estimates of model (M2) are reported in Table 3. The Glejser test for heteroscedasticity was not significant in any of

the five regressions. Also, the coefficient a_7 of the sales residuals was consistently significant ($p < 0.01$) and positive. It is not clear, however, that (M2) regressions explain the pay structure better than those of (M1). Consider, for example, the regression estimates of year +1 for owner-controlled firms that switched to LIFO under both models:

$$\text{LnP}_i = 3.97 + 0.15 \text{ LnINC}_i + e_i \quad (\text{Using (M1w)}; \bar{R}^2 = 0.82)$$

$$\text{LnP}_i = 4.03 + 0.146 \text{ LnINC}_i + 0.16 \text{ RS}_i + e_i \quad (\text{Using (M2)}; \bar{R}^2 = 0.31)$$

After having added a significant independent variable (RS) to the first equation, the adjusted R^2 was not expected to be so much different from that of the weighted least squares, especially since both are not heteroscedastic. But, model (M1w) clearly explains a significantly higher proportion of the variation in pay than model (M2). Finally, interpretation of the coefficient a_7 is complicated by the differences in signs of the coefficient and of the measurements of RS. Although the coefficient a_7 is consistently positive, the term as a whole is as equally likely to be positive as negative since the RS are the residuals from a regression--their expected mean is zero. Furthermore, the interaction between RS and the variable OM and its derivatives might be of concern. To understand this problem, consider the correlations between RS and each of OM, OM*INC, and OM*EC*INC shown in Table 4. Although these correlations are relatively low, their existence could be the reason that the significance of the coefficient, a_6 , for the interaction term OM*EC*INC was eclipsed by introducing the RS variable.

Insert Tables 3 and 4 here

Given these problems in the interpretation and estimation of (M2) with the introduction of a term for sales, there is no reason to believe that (M2) is a more correct specification of the underlying pay structure than (M1) and (Mlw). In this paper, the basic model (M1) will be used as if it is the correctly specified model, even though the results of estimating (M2) will also be discussed. A reconciliation of the findings of both models is attempted at the end of the next section. Using the basic model (M1), the BLUE used in examining the findings are: (i) those reported in Table 2 (using [Mlw]) for the years -2, 0 (as reported), 0 (as if), and +1; and (ii) the estimate regression reported in Table 1 for year -1. When the alternative model (M2) is used, all the estimates reported in Table 3 provide the basis for discussion.

5.b Findings. Discussion of the findings follows the three stages used in presenting the hypotheses. At first, the basic model and the results of its estimation are discussed as if it is the appropriate specification of the pay structure. The results of (M2) follows. Then a final note summarizing and contrasting various findings is presented.

5.b.1 The Period Before the Change. The research interest in this period lies in understanding the pay structure that prevailed prior to the year of the change. In particular, it is necessary to develop an appreciation for whether the pay structure was sufficiently different for those firms that retained FIFO from others that had subsequently

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Year with respect to change	Stat.	Intercept a_0 (t)	Coefficients							Summary Statistics		Heteroscedasticity? **
			a_1 (t)	a_2 (t)	a_3 (t)	a_4 (t)	a_5 (t)	a_6 (t)	a_7 (t)	Adjusted R^2	F (n; dn)	
Two years before the change: (Year -2)		3.33 (7.74)*	0.185 (4.5)*	0.37 (0.61)	-0.90 (-1.45)	-0.028 (-0.5)	0.081 (1.32)	0.015 (1.3)	0.159 (3.27)*	0.40	13.37* (7;124)	No
One year before the change: (Year -1)		2.81 (4.96)*	0.238 (4.56)*	-0.115 (-0.18)	-0.53 (-0.86)	0.0126 (0.22)	0.046 (0.8)	0.015 (1.53)	0.124 (2.99)*	0.45	18.5* (7;144)	No
The year of the change: (Year 0, as reported on LIFO)		4.16 (6.1)*	0.129 (2.08)*	0.55 (0.96)	-0.32 (-0.5)	-0.052 (-0.15)	0.012 (0.19)	0.027 (2.38)*	0.2 (4.04)*	0.32	10.9* (7;141)	No
The year after the change as reported: Year +1		4.03 (8.4)*	0.146 (3.34)*	0.63 (1.17)	0.167 (0.3)	-0.06 (-1.2)	-0.03 (-0.6)	0.026 (2.6)*	0.158 (3.74)*	0.31	10.4* (7;142)	No
The year of the change as if (FIFO) income		4.29 (6.1)*	0.115 (1.85)*	0.58 (1.01)	-0.05 (0.73)	-0.054 (-1.04)	0.03 (0.47)	0.0255 (2.22)*	0.21 (4.06)*	0.32	10.9*	No

Notes: (1) * Significant at level below 0.01

(2) ** Heteroscedasticity used Glejser Test

(3) The model estimated is:

$$\begin{aligned} \text{Ln}P_i = & a_0 + a_1 \text{LnINC}_i + a_2 \text{OM}_i + a_3 \text{EC}_i + a_4 \text{OM}_i * \text{LnINC}_i + a_5 \text{EC}_i * \text{LnINC}_i \\ & + a_6 \text{OM}_i * \text{EC}_i * \text{LnINC}_i + a_7 \text{RS}_i + e_i' \quad (\text{Model M2}) \end{aligned}$$

Table 4

Correlation Coefficients Between
 RS_i (Sales Residuals) and Other Variables
 in Model(2)

Variable	Year -2	Year -1	Year 0 (as reported)	Year +1
OM	+0.17	0.15	0.25	0.22
OM*INC	+0.17	0.14	0.21	0.18
EC	-0.02	0.02	-0.01	-0.04
EC*INC	-0.028	0.01	-0.06	-0.09
OM*EC*INC	0.10	0.14	0.12	0.09

Note: Correlation with income is 0.0, by construction

changed to LIFO to warrant making any inferences about the managerial motives.

Using the BLUE estimates for the period preceding the accounting change (from Table 1 for year -1, and from Table 2 for year -2), some differences in the pay structure between different groups of firms existed. In particular, the significance of coefficient a_6 for the interaction term $OM*EC*LnINC$ suggests that the manager-controlled firms that retained FIFO had a higher income-based bonus than those that subsequently switched to LIFO. That is, the elasticity of pay to income is equal to $a_1 + a_6$ (a_4 and a_5 are not included; due to lack of significance their coefficients are noise) for that group of firms (where $OM = 1$, and $EC = 1$) whereas it is equal to a_1 only for all others. Thus, the null hypothesis H_{10} is rejected in favor of the alternative hypothesis H_{1a} for this subset of firms (manager-controlled) that did not subsequently change to LIFO.

5.b.2 The Year of the Change. The hypotheses stated for this year relate to the adaptability of the pay structure as a result of making the switch to LIFO. The regression estimates reported in Table 2 (for Mlw) are used to develop the following relationships:

For the switch firms (both owner- and manager-controlled)

$$\text{LnP}_i = a_0 + a_1 \text{LnINC}_i + e_i$$

$$\text{LnP}_i = 3.12 + 0.222 \text{LnINC}_i + e_i$$

For the FIFO firms (owner-controlled)

$$\text{LnP}_i = (a_0 + a_3) + (a_1 + a_5) \text{LnINC}_i + e_i$$

$$\text{LnP}_i = 4.46 + 0.072 \text{LnINC}_i + e_i$$

For the FIFO firms (manager-controlled)

$$\text{LnP}_i = (a_0 + a_3) + (a_1 + a_5 + a_6)\text{LnINC}_i + e_i$$

$$\text{LnP}_i = 4.46 + 0.108 \text{LnINC}_i + e_i$$

These functions are characterized by four observations. (i) The pay structure for the executives of the switch firms was the same for both types of firms, manager-controlled and owner-controlled, and was characterized by a higher elasticity of pay to income than for those that retained FIFO. (ii) The pay structure of those retaining FIFO differed, by the firm's ownership; the manager-controlled firms had a higher coefficient (resulting from a significant interaction term measured by a_6) than the owner-controlled firms. This observation reflects the same relationship that existed prior to the change. (iii) The ratio of the bonus component of the switch firms to the bonus component of those that retained FIFO was higher by comparison to the ratios of the same measures in prior years. (iv) These three observations are common to both regressions estimated for year 0--the one regression using income as reported and the other using income as if no change took place.

By comparison with the functions estimated for the years before the change, this result in the year of change suggests that the switch firms have adapted to the effects of the change in the form of a larger income-based component of their compensation. Further, the similarity between the LIFO and the as-if regression suggests that the adaptation may not have been in the form of basing the bonus on the FIFO income. The similarity of the two functions, however, raises questions about the discriminating power of the test. In any case, these results

do not lead to rejecting the null hypothesis H_{20} and H_{30} ; that is, no adverse effects of the choice of LIFO on executives' bonus is observed even for those firms that are manager-controlled.

5.b.3 The Year after the Change. Using the regression estimate for year +1 in Table 2, the observed statistical significance of coefficients a_5 and a_6 (at $p \leq 0.01$) suggests the following relationships (using significant coefficients only):

For the switch firms (both owner and manager-controlled)

$$\text{LnP}_i = a_0 + a_1 \text{LnINC}_i + e_i$$

$$\text{LnP}_i = 3.97 + 0.15 \text{LnINC}_i + e_i$$

For the FIFO firms (owner-controlled)

$$\text{LnP}_i = a_0 + (a_1 + a_5) \text{LnTNC}_i + e_i$$

$$\text{LnP}_i = 3.97 + 0.04 \text{LnINC}_i + e_i$$

For the FIFO firms (manager-controlled)

$$\text{LnP}_i = a_0 + (a_1 + a_5 + a_6) \text{LnINC}_i + e_i$$

$$\text{LnP}_i = 3.97 + 0.074 \text{LnINC}_i + e_i$$

These relationships essentially indicate a continuation of the basic structure that prevailed during the year of the change. In particular, by comparison to others, the switch firms appear to have adapted to the lower LIFO-based income either by increasing the LIFO profit-share that is paid as a bonus to executives, or by continuing to use the as if (FIFO-based) income to determine the amounts of the bonus. Both types of adaptation are consistent with obtaining a higher regression coefficient when the LIFO income is used in estimation. In addition, the results continue to show that, of the firms that retained

FIFO, the manager-controlled firms had a higher bonus component. Accordingly, the decisions made concerning H_2 and H_3 remain unaltered.

5.c Consideration of the Alternative Model (M2). It was stated earlier that model (M2) has been included for two reasons: (1) It is consistent with the empirical models on executives' pay that have appeared in the managerial economics literature. And, (2) it provides a quality check on the results of (M1) in the event that (M1) is not a correct specification of the pay structure. Without actual inspection of various bonus contracts, the uncertainty about which of these, or any other, models as the appropriate form for representing the pay structure cannot be resolved.

The estimates of model (M2) are reported in Table 3. Several points are suggested by the regression estimates reported in that table. These estimates indicate the following:

(i) No difference in pay structure was detected before the change between the FIFO firms and those that subsequently changed to LIFO. This is different from the results of estimating (M1) which indicated a difference between manager-controlled FIFO firms and others in the two years before the change.

(ii) During and after the year of the change, the coefficient, a_6 , of the interaction term $OM*EC*LnINC$ was statistically significant (at $p < 0.01$) and positive. This is consistent with the results obtained from estimating (M1). Moreover, none of the other coefficients concerning the accounting change was statistically significant. Such a result implies the inability to reject the null

hypothesis H_{20} which was the case with the analysis of (M1). The change in the significance of the coefficient a_6 , however, from the pre-switch to the switch period implied a rejection of H_{30} for this subset of firms (the manager-controlled firms that retained FIFO).

5.d Summary and Contrast of the Findings. The findings of estimating (M1) and (M2) are summarized in Exhibit 1. As indicated, the results obtained by both models are not substantively different. There is no evidence of adverse effects of the switch to LIFO (on income decreasing) policy on executives' pay. With exception of the other finding that manager-controlled firms which retained FIFO have a relatively greater income-based bonus by comparison with others during and after the year of the change, the overall evidence suggests that the switch firms have adapted. Adaptation might have taken place in one of two forms:

Insert Exhibit 1 here

(1) changing the bonus contract in order to permit the use of a lower (LIFO) based-income, or (b) continuing the use of the pro forma FIFO income for the purpose of the determination of the bonus. Given these findings, it cannot be concluded that executives with income-based bonus contracts do not select income decreasing accounting policies.

The different findings between (M1) and (M2) with respect to the significance of the coefficient a_6 leads to a slightly different interpretation. One might argue that the relatively higher bonus component of a subset of the manager-controlled firms was a motive for retaining FIFO; and that motive existed before making the change (if M1

Exhibit 1

Summary of the Findings and
Contrasting the Results of Various Models

Period	Model	Model (M1) or (M1w)	Model (M2)
A. Pre the change to LIFO		(a) FIFO, Manager-controlled firms had a higher income-based bonus (b) Partial rejection of H_{01} for that group of firms	(a) No difference in pay structure between groups of firms (b) Cannot reject H_{01}
B. The Change Year		(a) Same as (a) above (b) Adaptation of bonus or of its base (c) Cannot reject H_{20} (d) Cannot reject H_{30}	(a) FIFO, manager-controlled firms had a higher bonus component (b) No other effects of the switch to LIFO (c) Cannot reject H_{20} (d) Partial rejection of H_{30}
C. The year after		Same as (B)	Same as (B)

is true) or in the year of the change (if M2 is true). Such an interpretation, however, questions the difference between the manager-controlled firms that changed to LIFO and those that retained FIFO. A further understanding of the structural properties of the bonus contracts is needed to better explain the motivation for managers who retain FIFO, an issue that could not be adequately explained by the evidence presented above.⁷

6. LIMITATIONS AND CONCLUDING COMMENTS

Two main findings were obtained: (i) switch companies appear to have adapted their bonus-pay to reflect the effect of the LIFO change on income by reconstructing the functions (indices) of their bonus contracts. That is, this income decreasing accounting change did not adversely affect the income-based performance bonus awards for those executives who elected to make the switch to LIFO. (ii) A subset of the manager-controlled firms that retained FIFO appear to have a relatively higher income-based bonus as compared to others.

The results obtained in this paper cannot be generalized beyond the sample used here without further replication. Moreover, the limitations of various measurements must be considered. Executives' pay was measured by the sum of salary, cash bonus, and performance bonus granted in unrestricted stock. Although using another measure of pay (see Appendix A) did not alter the findings significantly, the exclusion of stock options and changes in the market values of executives' stock holdings limit the generality of these results. It is important though to note that the use of other alternative models beyond the two

presented in the text did not alter the results. The results of some of those models are presented in Appendix B.

While the limitations presented above are intended to alert the reader as to the incompleteness of this paper, they raise additional research questions that should be interesting to follow.

Footnotes

¹The Congress has recently taken interest in simplifying "LIFO computation" in order to allow more firms to take advantage of the attendant tax savings. Even with such simplifications the IRS reports that the majority of firms have not changed to LIFO. (See, Daily Tax Report, October 5, 1983.) Also our analysis (to be reported later) shows that most FIFO firms would have benefited by the switch to LIFO.

²Tom Frecka provided the following. Using my sample, he calculated the ratio of taxes payable to sales for each firm (switch and control) for each of 1972-1982 years and in over 90 percent of the cases, the marginal tax rate was positive. The averages of taxes payable to sales ratios were as follows:

Year	1971	1972	1973	1975	1974	1976	1977	1978	1979	1980
Sample										
LIFO	0.024	0.027	0.027	0.022	0.018	0.025	0.023	0.024	0.021	0.014
Control	0.025	0.026	0.025	0.023	0.022	0.026	0.027	0.027	0.024	0.021

I would like to thank him for allowing me to use his data.

³In this paper, "pay" is defined to include salary, cash bonus and bonus in unrestricted stock. Another definition of pay adds to these three components fringe benefits and deferred performance payments (see Appendix A). However, both definitions exclude stock options granted, termination clause, golden parachutes, personal tax situation, ..., etc. and other changes in managers' wealth about which no adequate measurements can be readily developed. It is important to note,

however, that the measurements of pay used in this paper are the same used by managerial economists (e.g., Boyes and Schlagenhauf, 1979; Ciscel and Carroll, 1980; and Hirschey and Pappas, 1981).

⁴I would like to express my appreciation to the anonymous reviewer who asked to investigate this issue. Several corrections have been attempted as reported in the paper and in Appendix B.

⁵The (Mlw) model in the text was the result of applying the weight (1/LnINC) to model (M1) as follows:

Let $\frac{1}{\text{LnINC}_i} = K_i$, then model Mlw is as follows:

$$\begin{aligned} \text{LnP}_i(K_i) &= a_0(K_i) + a_1 \text{LnINC}_i(K_i) + a_2 \text{OM}_i(K_i) + a_3 \text{EC}_i(K_i) \\ &+ a_4 \text{OM}_i * \text{LnINC}_i(K_i) + a_5 \text{EC}_i * \text{LnINC}_i(K_i) \\ &+ a_6 \text{EC}_i * \text{OM}_i * \text{LnINC}_i(K_i) + e_i(K_i) \end{aligned}$$

(See Commons, 1976 for discussion)

⁶The goodness of fit of the regressions is the same regardless to whether the functions employs sales and the residuals from income as variables, or income and the residuals from sales. That is, the method of orthogonalizing the two variables influences the coefficients of income and sales, not the explanatory power of the entire function. Given that our objective is related to the effects of decrease in income resulting from the accounting change on the executives' pay, it is more sensible to use "income" to represent the commonalities of sales and income measures. The inclusion of income and the residuals of sales (after filtering out the common elements with income) in the

regression facilitated the interpretation of the coefficients of the income variable vis-à-vis. executives' pay and the accounting change.

⁷The objective of this study was to assess the effects of switching to LIFO and, by implication, understand one possible consequence that FIFO firms tried to avoid. Yet, the direct motivation for retaining FIFO needs to be examined further.

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Regression Results of Executives Pay as a
Function of Income, Firm Ownership and
The Accounting Change
(Using Total Pay)

Year with respect to change	Stat.	Intercept a_0	Coefficients						Summary Statistics		Hetero- scedast- icity?
			a_1	a_2	a_3	a_4	a_5	a_6	Adjusted R^2	F (n, dn)	
Two years before the change: (Year -2)		3.01 (6.6)*	0.224 (5.16)*	0.52 (0.8)	-0.58 (-0.89)	-0.047 (-0.77)	0.044 (0.68)	0.025 (2.02)*	0.36	13.6* (6;125)	Yes
One year before the change: (Year -1)		2.57 (3.9)*	0.27 (4.46)*	-0.47 (-0.65)	-0.79 (-1.1)	0.048 (0.7)	0.07 (1.03)	0.01 (0.9)	0.45	21.3*	No
The year of the change: (Year 0, as reported on LIFO)		2.6 (4.2)*	0.28 (4.9)*	1.09 (1.9)**	1.07 (1.82)**	-0.096 (-1.8)**	-0.116 (-2.11)*	0.027 (2.38)*	0.29	11.2*	No
The year after the change: (Year +1)		3.37 (7.1)*	0.211 (4.85)*	0.47 (0.82)	1.12 (2.09)*	-0.038 (-0.74)	-0.12 (-2.39)*	-0.029 (2.55)*	0.28	10.8*	No
The year of the change (Year 0 as if (FIFO) Income)		2.64 (4.2)*	0.27 (4.77)*	1.1 (1.89)**	1.03 (1.68)*	-0.095 (-1.82)**	-0.108 (-1.9)*	0.026 (2.24)*	0.28	10.8*	Yes

Notes: (1) * Indicates statistical significance at below 0.01.

(2) ** Indicates statistical significance at below 0.10.

(3) The model estimated is the following model using OLS:

$$\ln TP_i = a_0 + a_1 \ln INC_i + a_2 OM_i + a_3 EC_i + a_4 OM_i \ln INC_i + a_5 EC_i \ln INC_i + a_6 EC_i OM_i \ln INC_i + e_i \quad (M1)$$

(4) TP is defined as salary, cash bonus, bonus in unrestricted stock, fringe benefits and deferred performance bonus.

Regression Results of Executives Pay
as a Function of Income, Firm Ownership
and the Accounting Change
(Corrected for Heteroscedasticity)

Year with respect to change	Stat	Intercept a ₀ (t)	Coefficients						Summary Statistics		Heteroscedasticity?
			a ₁ (t)	a ₂ (t)	a ₃ (t)	a ₄ (t)	a ₅ (t)	a ₆ (t)	Adjusted R ²	F (n, dn)	
Two years before the change: Year -2		0.00084 (0.11)	0.504 (28.8)*	-0.087 (-1.05)	0.0044 (0.53)	0.018 (0.88)	-0.014 (-0.8)	0.0229 (1.67)**	0.96	597* (6;125)	No
One year before the change: Year -1		-0.0002 (-0.4)	0.512 (30.8)*	-0.0069 (-0.9)	-0.0105 (-1.44)	0.0095 (0.5)	0.017 (1.05)	0.0398 (3.4)*	0.97	815* (6;145)	Yes
The year of the change: Year 0 as reported (LIFO)		-0.011 (-0.87)	0.544 (16.8)*	0.0046 (0.33)	0.028 (2.0)*	-0.021 (-0.57)	-0.076 (-2.3)*	0.033 (1.4)	0.87	168* (6;142)	No
The year after the change: Year +1		-0.0026 (-1.67)**	0.59 (13.9)*	0.036 (2.0)*	0.063 (3.8)*	-0.01 (-2.03)*	-0.157 (-3.6)*	-0.0085 (-0.26)	0.77	82* (6;143)	Yes
The year of the change: Year 0 as if (FIFO)		-0.012 (-0.94)	0.539 (16.9)*	0.0057 (0.4)	0.028 (2.0)*	-0.026 (-0.71)	-0.07 (-2.1)*	0.035 (1.54)	0.87	164* (6;142)	No

Notes: (1) * Statistically significant at below 0.001

(2) **Statistically significant at below 0.05 (one tailed)

(3) The model estimated is the weighted regression:

$$\begin{aligned}
 (\text{Ln}P_i / A_i^{1/2}) &= a_0 + a_1 (\text{LnINC}_i / A_i^{1/2}) + a_2 \text{OM}_i + a_3 \text{EC}_i + a_4 \text{OM}_i * (\text{LnINC}_i / A_i^{1/2}) \\
 &+ a_5 \text{EC}_i * (\text{LnINC}_i / A_i^{1/2}) + a_6 \text{OM}_i * \text{EC}_i * (\text{LnINC}_i / A_i^{1/2}) + u_i
 \end{aligned}$$

Regression Analysis of Executives Pay
as a Function of Income, Firm Ownership
and the Accounting Change
(Corrected for Size Using TP)

Year with respect to change	Stat.	Coefficients						Summary Statistics		Heteroscedasticity?	
		Intercept a_0 (t)	a_1 (t)	a_2 (t)	a_3 (t)	a_4 (t)	a_5 (t)	a_6 (t)	Adjusted R^2		F (n, dm)
Two years before the change: (Year -2)		0.0044 (0.62)	0.505 (29.9)	-0.013 (-1.65)*	0.004 (0.5)	0.024 (1.18)	-0.017 (-0.96)	0.030 (2.22)*	0.97	645* (6;125)	No
One year before the change: (Year -1)		-0.006 (-0.76)	0.53 (25.9)	0.0031 (0.33)	0.0064 (0.71)	-0.01 (-0.4)	-0.015 (-0.7)	0.0086 (0.6)	0.95	515* (6;145)	Yes
The year of the change: (Year 0, as reported on LIFO)		-0.009 (-0.7)	0.55 (17.1)*	0.0025 (0.18)	0.03 (2.11)*	-0.013 (-0.35)*	-0.76 (-2.3)*	0.026 (1.15)	0.88	176* (6;142)	No
The year after the change: (Year +1)		-0.032 (-2.0)*	0.61 (14.6)*	0.04 (2.2)	0.07 (4.0)*	-0.11 (-2.2)*	-0.17 (-3.9)*	-0.0075 (-0.2)	0.77	87* (6;143)	Yes
The year of the change (Year 0 as if (FIFO) income)		-0.01 (-0.7)	0.54 (17.1)*	0.004 (0.3)	0.029 (2.14)*	-0.019 (-0.51)	-0.07 (-2.15)*	0.03 (1.3)	0.88	177*	No

Notes: (1) * Statistically significant at below 0.01.

(2) ** Statistically significant at below 0.10.

(3) The regression model estimated is:

$$\frac{\text{LnTP}}{A_2} = a_0 + a_1 \left(\frac{\text{LnINC}}{A_2} \right) + a_2 \text{OM} + a_3 \text{EC} + a_4 \text{OM}^* \left(\frac{\text{LnINC}}{A_2} \right) + a_5 \text{EC}^* \left(\frac{\text{LnINC}}{A_2} \right) + a_6 \text{OM}^* \text{EC}^* \left(\frac{\text{LnINC}}{A_2} \right) + u$$

(4) TP is defined to include salary, cash bonus, bonus in unrestricted stock, fringe benefits, and deferred bonus payments.

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